

and tough, and quite opaque except in thin sections or at the edges, where it has a slightly hyaline appearance. In its histology the test differs considerably in different regions. The outer layer in the head contains great numbers of bladder cells, and the matrix is consequently reduced to a reticulum (Pl. XVII. fig. 8). Between the bladder cells numbers of the usual small rounded and fusiform cells are present, and here and there large pigment corpuscles are met with. These are like bladder cells in shape, and are usually larger, but they are filled with granular masses of opaque white pigment (Pl. XVII. fig. 8, *p.c.*).

The peduncle is traversed by longitudinally running canals which contain the vascular appendages. These canals are nearly circular in cross section (Pl. XVII. fig. 5), and give the tissue its coarsely spongy texture. The test between these canals is in its outer parts (Pl. XVII. fig. 6) filled with bladder cells and great numbers of small cells, many of which are most beautifully branched, their processes extending through the structureless matrix to great distances. In the centre of the peduncle the tissue is much more dense. Bladder cells are absent, while the smaller cells are very peculiar; they are nearly all larger than elsewhere, and of a circular or rudely square or oblong shape (Pl. XVII. fig. 7, *p.c.*). They stain with picrocarmine a homogeneous red tint, and show no nuclei.

The mantle is singularly weak (Pl. XVII. fig. 9). In some cases the muscle bundles contain only a single delicate muscle fibre each. On these the nuclei are seen as distinct fusiform swellings. The atrial siphon is large, but has no distinct sphincter (Pl. XVII. fig. 9, *at.*).

The transverse vessels of the branchial sac (Pl. XVII. fig. 3, *tr.*) are rather wide, and have delicate horizontal membranes. The stigmata are very like those of *Colella gaimardi* (Pl. XIV. fig. 8.).

The alimentary canal is narrow (Pl. XVII. fig. 9). The œsophagus is long but narrow; it runs nearly directly backwards, and opens into the anterior end of the somewhat ovate stomach (Pl. XVII. fig. 9, *st.*). The stomach is not large, and its walls are smooth. It tapers posteriorly towards the intestine, which runs backwards and turns round ventrally and then anteriorly forming a narrow loop. It crosses the œsophagus to become the rectum, running up the dorsal edge of the branchial sac.

The reproductive organs form a large ovate mass placed in the intestinal loop, and extending beyond the intestine ventrally and posteriorly (Pl. XVII. figs. 9, 10, *g.* and *t.v.*). It was formed entirely in all the Ascidiozooids examined by opaque ovate spermatid vesicles. Each of these has a short narrow duct (Pl. XVII. fig. 11), and these join together at the posterior end of the body to give rise to the vas deferens (Pl. XVII. figs. 9, 11, *v.d.*). This tube is conspicuous throughout its whole course. It curves round ventrally and then anteriorly from its point of origin, and ascends along the ventral edge of the visceral mass until it reaches the rectum. At its upper end for a short distance it becomes swollen to about twice its ordinary calibre.